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**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WASHINGTON
AT YAKIMA**

MICHAEL SCOTT BRUMBACK,
an individual, et al.,

Plaintiffs,

v.

ROBERT W. FERGUSON, in his
official capacity as Washington
State Attorney General, et al.,

Defendants,

NO. 1:22-cv-03093-MKD

DECLARATION OF LUCY P.
ALLEN IN OPPOSITION TO
PLAINTIFFS' MOTION FOR
INJUNCTIVE AND
DECLARATORY RELIEF

NOVEMBER 23, 2022
With Oral Argument: 11:00 a.m.

I, Lucy P. Allen, declare under penalty of perjury under the laws of the
United States that the information in this declaration is true:

1. I am a Managing Director of NERA Economic Consulting
("NERA"), a member of NERA's Securities and Finance Practice and Chair of
NERA's Product Liability and Mass Torts Practice. NERA provides practical

1 economic advice related to highly complex business and legal issues arising from
2 competition, regulation, public policy, strategy, finance, and litigation. NERA
3 was established in 1961 and now employs approximately 500 people in more than
4 20 offices worldwide.

5 2. In my over 25 years at NERA, I have been engaged as an economic
6 consultant or expert witness in numerous projects involving economics and
7 statistics. I have been qualified as an expert and testified in court on various
8 economic and statistical issues relating to the flow of guns into the criminal
9 market. I have testified at trials in Federal and State Courts, before the New York
10 City Council Public Safety Committee, the American Arbitration Association
11 and the Judicial Arbitration Mediation Service, as well as in depositions.

12 3. I have an A.B. from Stanford University, an M.B.A. from Yale
13 University, and M.A. and M. Phil. degrees in Economics, also from Yale
14 University. Prior to joining NERA, I was an Economist for both President George
15 H. W. Bush's and President Bill Clinton's Council of Economic Advisers. My
16 resume with recent publications and testifying experience is included as
17 Exhibit A.

18 4. This declaration reports the results of my analyses with respect to
19 the following issues: (a) the number of rounds of ammunition fired by individuals
20 using a gun in self-defense; and (b) the outcomes when large-capacity magazines
21 are used in public mass shootings, including the associated number of casualties.
22

OPINIONS

A. Number of Rounds Fired by Individuals in Self-Defense

5. Plaintiffs claim the “large-capacity magazines” covered by Washington’s ESSB 5078 (which are magazines capable of holding more than ten rounds) are commonly used for lawful purposes, including for self-defense.¹

6. The number of rounds commonly needed by individuals to defend themselves cannot be practically or ethically determined with controlled scientific experiments and there is no source that systematically tracks or maintains data on the number of rounds fired by individuals in self-defense. Due to these limitations, I have analyzed available data sources to estimate the number of rounds fired by individuals to defend themselves. In particular, I have analyzed data from the NRA Institute for Legislative Action, as well as my own study of news reports on incidents of self-defense with a firearm. In all, I have analyzed almost 1,000 incidents of self-defense with a firearm and found that it is rare for a person, when using a firearm in self-defense, to fire more than ten rounds.

7. The NRA maintains a database of “Armed Citizen” stories describing private citizens who have successfully defended themselves, or others, using a firearm (“NRA Armed Citizen database”). According to the NRA, the “Armed Citizen” stories “highlight accounts of law-abiding gun owners in

¹ See, for example, Complaint for Injunctive and Declaratory Relief, filed July 21, 2022, ¶¶10, 44.

1 America using their Second Amendment rights to defend self, home and
2 family.”² Although the methodology used to compile the NRA Armed Citizen
3 database of stories is not explicitly detailed by the NRA, the NRA Armed Citizen
4 database is a useful data source in this matter for at least three reasons. First, the
5 Armed Citizen database was the largest collection of accounts of citizen self-
6 defense compiled by others that I was able to find.³ Second, the incidents listed
7 in the Armed Citizen database highlight the very conduct that Plaintiffs claim the
8 Washington law impedes (*i.e.*, the use of firearms by law-abiding citizens for
9 self-defense).⁴ Third, the Armed Citizen database is compiled by an entity that
10 actively opposes restrictions on magazine capacity and restrictions on the
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15 ² NRA Institute for Legislative Action, Armed Citizens,
16 <https://www.nraila.org/gun-laws/armed-citizen/>, accessed May 28, 2017.

17 ³ Note that in 2020, after the time my research was conducted, The
18 Heritage Foundation began an online database of its own sample of defensive
19 gun use incidents ([https://datavisualizations.heritage.org/firearms/defensive-](https://datavisualizations.heritage.org/firearms/defensive-gun-uses-in-the-us)
20 [gun-uses-in-the-us](https://datavisualizations.heritage.org/firearms/defensive-gun-uses-in-the-us)).

21 ⁴ Complaint for Injunctive and Declaratory Relief, filed July 21, 2022,
22 ¶¶10, 44.

1 possession and use of firearms in general.⁵ In light of the positions taken by the
2 entity compiling the data, I would expect that any selection bias would be in favor
3 of stories that put use of guns in self-defense in the best possible light and might
4 highlight the apparent need of guns and/or multiple rounds in self-defense
5 incidents.

6 8. My team and I performed an analysis of incidents in the NRA
7 Armed Citizen database that occurred between January 2011 and May 2017.⁶ For
8 each incident, the city/county, state, venue (whether the incident occurred on the
9 street, in the home, or elsewhere) and the number of shots fired were tabulated.⁷

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12 ⁵ See, for example, NRA Civil Rights Defense Fund website,
13 <http://www.nradefensefund.org/current-litigation.aspx>, accessed October 12,
14 2018.

15 ⁶ My collection and coding of the NRA Armed Citizen stories was last
16 performed in mid-2017.

17 ⁷ The following incidents were excluded from the analysis: (1) duplicate
18 incidents, (2) wild animal attacks, and (3) one incident where the supposed victim
19 later pleaded guilty to covering up a murder. When the exact number of shots
20 fired was not specified, we used the average for the most relevant incidents with
21 known number of shots. For example, if the story stated that “shots were fired”
22 this would indicate that at least two shots were fired and thus we used the average

1 The information was gathered for each incident from both the NRA synopsis and,
2 where available, an additional news story. An additional news story was found
3 for over 95% of the incidents in the NRA Armed Citizen database.

4 9. According to this analysis of incidents in the NRA Armed Citizen
5 database, defenders fired 2.2 shots on average. Out of 736 incidents, there were
6 two incidents (0.3% of all incidents), in which the defender was reported to have
7 fired more than 10 bullets.⁸ In 18.2% of incidents, the defender did not fire any
8 shots, and simply threatened the offender with a gun. For incidents occurring in
9 the home (56% of total), defenders fired an average of 2.1 shots, and fired no
10 shots in 16.1% of incidents. For incidents occurring outside the home (44%) of
11 total, defenders fired an average of 2.2 shots, and fired no shots in 20.9% of
12 incidents.⁹ The table below summarizes these findings:

13 _____
14 number of shots fired in all incidents in which two or more shots were fired and
15 the number of shots was specified.

16 ⁸ Note that the only two incidents with more than 10 bullets fired were
17 added to the NRA Armed Citizen database in 2016 and 2017 after an earlier
18 analysis that I had conducted of the database had been submitted to and cited by
19 the Court in *Stephen v. Kolbe, et al. v. Martin O'Malley, et al.*

20 ⁹ A separate study of incidents in the NRA Armed Citizen database for an
21 earlier period (the five-year period from 1997 through 2001) found similar
22 results. Specifically, this study found that, on average, 2.2 shots were fired by

**Number of Shots Fired in Self-Defense
Based on NRA Armed Citizen Incidents in the United States
January 2011 - May 2017**

	Shots Fired by Individual in Self-Defense		
	Overall	Incidents in Home	Outside the Home
Average Number of Shots Fired	2.2	2.1	2.2
Number of Incidents with No Shots Fired	134	66	68
Percent of Incidents with No Shots Fired	18.2%	16.1%	20.9%
Number of Incidents with >10 Shots Fired	2	2	0
Percent of Incidents with >10 Shots Fired	0.3%	0.5%	0.0%

Notes and Sources:

Data from NRA Armed Citizen database covering 736 incidents (of which 411 were in the home) from January 2011 through May 2017. Excludes duplicate incidents, wild animal attacks and one incident where the supposed victim later pleaded guilty to covering up a murder.

defenders and that in 28% of incidents of armed citizens defending themselves the individuals fired no shots at all. See, Claude Werner, “The Armed Citizen – A Five Year Analysis,” <http://gunssaveslives.net/self-defense/analysis-of-five-years-of-armed-encounters-with-data-tables>, accessed January 10, 2014.

10. We also performed the same analysis of the NRA Armed Citizen database limited to incidents that occurred in Washington State. According to this analysis, defenders in Washington State fired 2.1 shots on average. Out of 23 incidents, there were no incidents in which the defender was reported to have fired more than 10 bullets. In 13% of incidents, the defender did not fire any shots, and simply threatened the offender with a gun. For incidents occurring in the home (70% of total), defenders fired an average of 2.1 shots, and fired no shots in 12.5% of incidents. For incidents occurring outside the home (30% of total), defenders fired an average of 1.9 shots and fired no shots in 14.3% of incidents. The table below summarizes these findings for Washington State:

**Number of Shots Fired in Self-Defense
Based on NRA Armed Citizen Incidents in Washington State
January 2011 - May 2017**

	Shots Fired by Individual in Self-Defense		
	Overall	Incidents in Home	Outside the Home
Average Number of Shots Fired	2.1	2.1	1.9
Number of Incidents with No Shots Fired	3	2	1
Percent of Incidents with No Shots Fired	13.0%	12.5%	14.3%
Number of Incidents with >10 Shots Fired	0	0	0
Percent of Incidents with >10 Shots Fired	0.0%	0.0%	0.0%

Notes and Sources:

Data from NRA Armed Citizen database covering 23 incidents in Washington (of which 16 were in the home) from January 2011 through May 2017. Excludes duplicate incidents and wild animal attacks.

1 11. In addition to our analysis of incidents in the NRA Armed Citizen
2 database, we performed a systematic, scientific study of news reports on incidents
3 of self-defense with a firearm in the home, focusing on the same types of
4 incidents as the NRA stories and covering the same time period.¹⁰

5 12. To identify relevant news stories to include in our analysis, we
6 performed a comprehensive search of published news stories using Factiva, an
7 online news reporting service and archive owned by Dow Jones, Inc. that
8 aggregates news content from nearly 33,000 sources. The search was designed to
9 return stories about the types of incidents that are the focus of the NRA Armed
10 Citizen database and that Plaintiffs claim the Washington law impedes – in
11 particular, the use of firearms for self-defense.¹¹ The search identified all stories
12 that contained the following keywords in the headline or lead paragraph: one or

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14 ¹⁰ This analysis was initially conducted to research issues regarding self-
15 defense in the home, which was a focus before the 2022 *New York State Rifle &*
16 *Pistol Association v. Bruen* Supreme Court decision. The analysis of the NRA
17 Armed Citizen incidents described above indicates that the number of shots fired
18 in self-defense outside the home is similar to those inside the home.

19 ¹¹ NRA Institute for Legislative Action, Armed Citizens,
20 <https://www.nraila.org/gun-laws/armed-citizen/>, accessed May 28, 2017. See,
21 also, Complaint for Injunctive and Declaratory Relief, filed July 21, 2022, ¶¶10,
22 44.

1 more words from “gun,” “shot,” “shoot,” “fire,” or “arm” (including variations
2 on these keywords, such as “shooting” or “armed”), plus one or more words from
3 “broke in,” “break in,” “broken into,” “breaking into,” “burglar,” “intruder,” or
4 “invader” (including variations on these keywords) and one or more words from
5 “home,” “apartment,” or “property” (including variations on these keywords).¹²

6 The search criteria match approximately 90% of the NRA stories on self-defense
7 with a firearm in the home, and an analysis of the 10% of stories that are not
8 returned by the search shows that the typical number of shots fired in these
9 incidents was no different than in other incidents.¹³ The search covered the same
10 period used in our analysis of incidents in the NRA Armed Citizen database

11 _____
12 ¹² The precise search string used was: (gun* or shot* or shoot* or fire* or
13 arm*) and (“broke in” or “break in” or “broken into” or “breaking into” or
14 burglar* or intrud* or inva*) and (home* or “apartment” or “property”). An
15 asterisk denotes a wildcard, meaning the search includes words which have any
16 letters in place of the asterisk. For example, a search for shoot* would return
17 results including “shoots,” “shooter” and “shooting.” The search excluded
18 duplicate stories classified as “similar” on Factiva.

19 ¹³ The analysis and search would have used criteria to match actual
20 incidents involving Plaintiffs or Washington State residents, but, based on the
21 Complaint for Injunctive and Declaratory Relief, Plaintiffs have not identified
22 any incidents of the type they claim the Washington law will impede.

1 (January 2011 to May 2017). The region for the Factiva search was set to “United
2 States.” The search returned approximately 35,000 stories for the period January
3 2011 to May 2017.¹⁴

4 13. Using a random number generator, a random sample of 200 stories
5 was selected for each calendar year, yielding 1,400 stories in total.¹⁵ These 1,400
6 stories were reviewed to identify those stories that were relevant to the analysis,
7 *i.e.*, incidents of self-defense with a firearm in or near the home. This
8 methodology yielded a random selection of 200 news stories describing incidents
9 of self-defense with a firearm in the home out of a population of approximately
10 4,800 relevant stories. Thus, we found that out of the over 70 million news stories
11 aggregated by Factiva between January 2011 and May 2017, approximately
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14 ¹⁴ The effect of using alternative keywords was considered. For example,
15 removing the second category (“broke in” or “break in” or “broken into” or
16 “breaking into” or burglar* or intrud* or inva*) and including incidents in which
17 the assailant was already inside the home and/or was known to the victim was
18 considered. *A priori*, there was no reason to believe that a larger number of shots
19 would be used in these incidents and based on an analysis of the NRA stories we
20 found that the number of shots fired in incidents when defending against someone
21 already in the home was not different than those with an intruder.

22 ¹⁵ The random numbers were generated by sampling with replacement.

1 4,800 news stories were on incidents of self-defense with a firearm in the home.
2 We analyzed a random selection of 200 of these stories.

3 14. For each news story, the city/county, state and number of shots fired
4 were tabulated. When tabulating the number of shots fired, we used the same
5 methodology as we used to analyze stories in the NRA Armed Citizen database.¹⁶
6 We then identified other stories describing the same incident on Factiva based on
7 the date, location and other identifying information, and recorded the number of
8 times that each incident was covered by Factiva news stories.

9 15. To determine the average number of shots fired per *incident*, we first
10 determined the average number of shots fired per *story* and then analyzed the
11 number of stories per incident. According to our study of a random selection from
12 approximately 4,800 relevant stories on Factiva describing incidents of self-
13 defense with a firearm in the home, the average number of shots fired per story
14 was 2.61. This is not a measure of the average shots fired *per incident*, however,
15 because the number of stories covering an incident varies, and the variation is not

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17 ¹⁶ When the exact number of shots fired was not specified, we used the
18 average for the most relevant incidents with known number of shots. For
19 example, if the story stated that “shots were fired” this would indicate that at least
20 two shots were fired and thus we used the average number of shots fired in all
21 incidents in which two or more shots were fired and the number of shots was
22 specified.

1 independent of the number of shots fired. We found that there was a statistically
2 significant relationship between the number of shots fired in an incident and the
3 number of news stories covering an incident.¹⁷ We found that on average the
4 more shots fired in a defensive gun use incident, the greater the number of stories
5 covering an incident. For example, as shown in the table below, we found that
6 incidents in Factiva news stories with zero shots fired were covered on average
7 by 1.8 news stories, while incidents with six or more shots fired were covered on
8 average by 10.4 different news stories.

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15 ¹⁷ Based on a linear regression of the number of news stories as a function
16 of the number of shots fired, the results were statistically significant at the 1%
17 level (more stringent than the 5% level commonly used by academics and
18 accepted by courts. See, for example, Freedman, David A., and David H. Kaye,
19 “Reference Guide on Statistics,” *Reference Manual on Scientific Evidence*
20 (Washington, D.C.: The National Academies Press, 3rd ed., 2011), pp. 211-302,
21 and Fisher, Franklin M., “Multiple Regression in Legal Proceedings,” 80
22 *Columbia Law Review* 702 (1980).)

**Average Number of News Stories by Number of Shots Fired
In Factiva Stories on Incidents of Self-Defense with a Firearm
January 2011 - May 2017**

<u>Number of Shots Fired By Defender</u>	<u>Average Number of News Stories</u>
0	1.8
1 to 2	2.8
3 to 5	3.8
6 or more	10.4

Notes and Sources:

Based on news stories describing defensive gun use in a random selection of Factiva stories between 2011 and May 2017 using the search string: (gun* or shot* or shoot* or fire* or arm*) and ("broke in" or "break in" or "broken into" or "breaking into" or burglar* or intrud* or inva*) and (home* or "apartment" or "property"), with region set to "United States" and excluding duplicate stories classified as "similar" on Factiva. Methodology for tabulation of shots fired as per footnote 16.

16. After adjusting for this disparity in news coverage, we find that the average number of shots fired per incident covered is 2.34.¹⁸ Note that this

¹⁸ The adjustment reflects the probability that a news story on a particular incident would be selected at random from the total population of news stories on incidents of self-defense with a firearm in the home. The formula used for the adjustment is:

$$\frac{\sum_{i=1}^n \left(\text{Shots Fired}_i \times \frac{R_i}{C_i} \right)}{\sum_{i=1}^n \left(\frac{R_i}{C_i} \right)}$$

where:

1 adjustment does not take into account the fact that some defensive gun use
2 incidents may not be picked up by *any* news story. Given the observed
3 relationship that there are more news stories when there are more shots fired, one
4 would expect that the incidents that are not written about would on average have
5 fewer shots than those with news stories. Therefore, the expectation is that these
6 results, even after the adjustment, are biased upward (*i.e.*, estimating too high an
7 average number of shots and underestimating the percent of incidents in which
8 no shots were fired).

9 17. As shown in the table below, according to the study of Factiva news
10 stories, in 11.6% of incidents the defender did not fire any shots, and simply
11 threatened the offender with a gun. In 97.3% of incidents the defender fired 5 or
12 fewer shots. There were no incidents where the defender was reported to have
13 fired more than 10 bullets.

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19 n = random selection of news stories on incidents of self-defense with a firearm
20 in the home

21 R_i = number of search results on Factiva in the calendar year of incident i

22 C_i = number of news stories covering incident i

**Number of Shots Fired in Self-Defense in the Home
Based on Random Selection of News Stories in Factiva
January 2011 - May 2017**

Estimated population of news reports in Factiva on self-defense with a firearm in the home	4,841
Random selection of news reports	200
Average Number of Shots Fired	2.34
Median Number of Shots Fired	2.03
Number of Incidents with No Shots Fired	23
Percent of Incidents with No Shots Fired	11.6%
Number of Incidents with ≤ 5 Shots Fired	195
Percent of Incidents with ≤ 5 Shots Fired	97.3%
Number of Incidents with > 10 Shots Fired	0
Percent of Incidents with > 10 Shots Fired	0.0%

Notes and Sources:

Based on news stories describing defensive gun use in a random selection of Factiva stories between 2011 and May 2017 using the search string: (gun* or shot* or shoot* or fire* or arm*) and ("broke in" or "break in" or "broken into" or "breaking into" or burglar* or intrud* or inva*) and (home* or "apartment" or "property"), with region set to "United States" and excluding duplicate stories classified as "similar" on Factiva. Methodology for tabulation of shots fired as per footnote 16. Number of incidents probability-weighted as per footnote 18.

18. In sum, an analysis of incidents in the NRA Armed Citizen database, as well as our own study of a random sample from approximately 4,800 news stories describing incidents of self-defense with a firearm, indicates that it is rare for a person, when using a firearm in self-defense, to fire more than ten rounds.

B. Public Mass Shootings

19. We analyzed the use of large-capacity magazines in public mass

1 shootings using four sources for identifying public mass shootings: Mother
2 Jones,¹⁹ the Citizens Crime Commission of New York City,²⁰ the Washington
3 Post²¹ and the Violence Project.^{22, 23} The analysis focused on public mass

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5 ¹⁹ “US Mass Shootings, 1982-2018: Data From Mother Jones’
6 Investigation,” Mother Jones, updated December 11, 2019,
7 [http://www.motherjones.com/politics/2012/12/mass-shootings-mother-jones-](http://www.motherjones.com/politics/2012/12/mass-shootings-mother-jones-full-data)
8 [full-data](http://www.motherjones.com/politics/2012/12/mass-shootings-mother-jones-full-data).

9 ²⁰ “Mayhem Multiplied: Mass Shooters and Assault Weapons,” Citizens
10 Crime Commission of New York City, February 2018 update. Additional details
11 on the mass shootings were obtained from an earlier source by the Citizens Crime
12 Commission. “Mass Shooting Incidents in America (1984-2012),” Citizens
13 Crime Commission of New York City, [http://www.nycrimecommission.org/ma](http://www.nycrimecommission.org/mass-shooting-incidents-america.php)
14 [ss-shooting-incidents-america.php](http://www.nycrimecommission.org/mass-shooting-incidents-america.php), accessed June 1, 2017.

15 ²¹ “The terrible numbers that grow with each mass shooting,” The
16 Washington Post, updated December 18, 2019, [https://www.washingtonpost.co](https://www.washingtonpost.com/graphics/2018/national/mass-shootings-in-america/)
17 [m/graphics/2018/national/mass-shootings-in-america/](https://www.washingtonpost.com/graphics/2018/national/mass-shootings-in-america/).

18 ²² “Mass Shooter Database,” The Violence Project, [https://www.theviole](https://www.theviolenceproject.org/mass-shooter-database/)
19 [nceproject.org/mass-shooter-database/](https://www.theviolenceproject.org/mass-shooter-database/), accessed January 17, 2020.

20 ²³ When I began research in 2013 on mass shootings, I found Mother Jones
21 and Citizens Crime Commission to maintain the most comprehensive lists of
22 relevant mass shootings. More recently, two additional sources, the Washington

1 shootings because it is my understanding that the state of Washington is
2 concerned about public mass shootings and enacted the challenged law, in part,
3 to address the problem of public mass shootings.

4 20. The type of incident considered a mass shooting is generally
5 consistent across the four sources. In particular, all four sources consider an event
6 a mass shooting if four or more people were killed in a public place in one
7 incident, and exclude incidents involving other criminal activity such as a
8 robbery.²⁴

9 _____
10 Post and The Violence Project, have compiled lists of public mass shootings. The
11 Violence Project began work on its mass shootings database in September 2017
12 and its database first went online in November 2019, while the Washington Post
13 first published its mass shootings database in February 14, 2018. There is
14 substantial overlap between the mass shootings in all four sources. For example,
15 the Mother Jones data contains 93% of the mass shootings in the Citizens Crime
16 Commission data for the years covered by both data sources, 1984 to 2016, while
17 the Washington Post contains 94% of the mass shootings in The Violence Project
18 data for the years covered by both data sources, 1966 to 2019. This analysis was
19 last updated in January 2020 and can be updated to include more recent incidents.

20 ²⁴ Citizen Crime Commission describes a mass shooting as “four or more
21 victims killed” in “a public place” that were “unrelated to another crime (e.g.,
22 robbery, domestic violence).” Citizen Crime notes that its sources include “news

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3 reports and lists created by government entities and advocacy groups.” “Mayhem
4 Multiplied: Mass Shooters and Assault Weapons,” Citizens Crime Commission
5 of New York City, February 2018 update.

6 Mother Jones describes a mass shooting as “indiscriminate rampages in
7 public places resulting in four or more victims killed by the attacker,” excluding
8 “shootings stemming from more conventionally motivated crimes such as armed
9 robbery or gang violence.” Although in January 2013 Mother Jones changed its
10 definition of mass shooting to include instances when three or more people were
11 killed, for this declaration we only analyzed mass shootings where four or more
12 were killed to be consistent with the definition of the other three sources. “A
13 Guide to Mass Shootings in America,” Mother Jones, updated December 11,
14 2019, <http://www.motherjones.com/politics/2012/07/mass-shootings-map>. See
15 also, “What Exactly is a Mass Shooting,” Mother Jones, August 24, 2012.
16 <http://www.motherjones.com/mojo/2012/08/what-is-a-mass-shooting>.

17 The Washington Post source describes a mass shooting as “four or more
18 people [] killed by a lone shooter (two shooters in a few cases),” excluding
19 “shootings tied to robberies that went awry” and “domestic shootings that took
20 place exclusively in private homes.” The Washington Post notes that its sources
21 include “Grant Duwe, author of ‘Mass Murder in the United States: A History,’
22 Mother Jones and Washington Post research,” as well as “Violence Policy

Center, Gun Violence Archive; FBI 2014 Study of Active Shooter Incidents; published reports.” “The terrible numbers that grow with each mass shooting,” The Washington Post, updated December 18, 2019, <https://www.washingtonpost.com/graphics/2018/national/mass-shootings-in-america/>.

The Violence Project indicates that it uses the Congressional Research Service definition of a mass shooting: “a multiple homicide incident in which four or more victims are murdered with firearms—not including the offender(s)—within one event, and at least some of the murders occurred in a public location or locations in close geographical proximity (e.g., a workplace, school, restaurant, or other public settings), and the murders are not attributable to any other underlying criminal activity or commonplace circumstance (armed robbery, criminal competition, insurance fraud, argument, or romantic triangle).” The Violence Project notes that its sources include “Primary Sources: Written journals / manifestos / suicide notes etc., Social media and blog posts, Audio and video recordings, Interview transcripts, Personal correspondence with perpetrators” as well as “Secondary Sources (all publicly available): Media (television, newspapers, magazines), Documentary films, Biographies, Monographs, Peer-reviewed journal articles, Court transcripts, Law Enforcement records, Medical records, School records, Autopsy reports.” “Mass Shooter

21. Each of the four sources contains data on mass shootings covering different time periods. The Mother Jones data covers 98 mass shootings from 1982 to December 11, 2019,²⁵ the Citizens Crime Commission data covers 80 mass shootings from 1984 to February 2018,²⁶ the Washington Post data covers 172 mass shootings from 1966 to December 18, 2019,²⁷ and The Violence Project data covers 171 mass shootings from 1966 to 2019.²⁸

Database,” The Violence Project, <https://www.theviolenceproject.org/methodology/>, accessed January 17, 2020.

²⁵ “A Guide to Mass Shootings in America,” Mother Jones, updated December 11, 2019, <http://www.motherjones.com/politics/2012/07/mass-shootings-map>. Excludes mass shootings where only three people were killed. Note this analysis of the Mother Jones data may not match other analyses because Mother Jones periodically updates its historical data.

²⁶ “Mayhem Multiplied: Mass Shooters and Assault Weapons,” *Citizens Crime Commission of New York City*, February 2018 update.

²⁷ “The terrible numbers that grow with each mass shooting,” *The Washington Post*, updated December 18, 2019, <https://www.washingtonpost.com/graphics/2018/national/mass-shootings-in-america/>.

²⁸ “Mass Shooter Database,” *The Violence Project* <https://www.theviolenceproject.org/mass-shooter-database/>, accessed January 17, 2020.

1 22. Note that the two more recently compiled sources of mass shootings,
2 the Washington Post and The Violence Project, include additional mass shootings
3 that were not covered by either Mother Jones or Citizens Crime Commission. In
4 general, we found that these additional mass shootings were less covered by the
5 media and involved fewer fatalities and/or injuries than the ones previously
6 identified by Mother Jones or Citizens Crime Commission. For example, we
7 found that the median number of news stories for a mass shooting included in
8 Mother Jones and/or Citizen Crime Commission was 317, while the median for
9 the additional mass shootings identified in the Washington Post and/or The
10 Violence Project was 28.²⁹ In addition, we found an average of 21 fatalities or
11 injuries for a mass shooting included in Mother Jones and/or Citizen Crime
12 Commission, while only 6 fatalities or injuries for the additional mass shootings
13 identified in the Washington Post and/or The Violence Project.

14 23. We combined the data from the four sources for the period 1982
15 through 2019, and searched news stories on each mass shooting to obtain
16 additional details on the types of weapons used as well as data on shots fired
17 where available. We identified, based on this publicly available information,
18 which mass shootings involved the use of large-capacity magazines. See attached
19

20 ²⁹ The search was conducted over all published news stories on Factiva.
21 The search was based on the shooter's name and the location of the incident over
22 the period from one week prior to three months following each mass shooting.

1 Exhibit B for a summary of the combined data based on Mother Jones, Citizens
2 Crime Commission, the Washington Post and news reports.

3 **1. Use of large-capacity magazines in public mass shootings**

4 24. Based on the data, we found that large-capacity magazines (those
5 with a capacity to hold more than 10 rounds of ammunition) are often used in
6 public mass shootings. Magazine capacity is known in 105 out of the 161 mass
7 shootings (or 65%) considered in this analysis. Out of the 105 mass shootings
8 with known magazine capacity, 63 (or 60%) involved large-capacity magazines.
9 Even assuming the mass shootings with unknown magazine capacity *all* did not
10 involve large-capacity magazines, 63 out of 161 mass shootings or 39% of mass
11 shootings involved large capacity magazines. (See table below.)

12 25. Based on our analysis of the public mass shootings data, casualties
13 were higher in the mass shootings that involved weapons with large-capacity
14 magazines than in other mass shootings. In particular, we found an average
15 number of fatalities or injuries of 27 per mass shooting with a large-capacity
16 magazine versus 9 for those without. Focusing on just fatalities, we found an
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average number of fatalities of 10 per mass shooting with a large-capacity magazine versus 6 for those without. (See table below.)

Numbers of Fatalities and Injuries in Public Mass Shootings

Weapon Used	# of Incidents	Average # of		
		Fatalities	Injuries	Total
Large-Cap. Mag.	63	10	17	27
No Large-Cap. Mag.	42	6	3	9
Unknown	56	5	3	7

Notes and Sources:

Casualty figures exclude the shooter. LCM classification and casualties based on review of stories from Factiva/Google searches.

26. Our results are consistent with those of other studies that have analyzed mass shootings. Note that although the other studies are based on alternate sets of mass shootings, including covering different years and defining mass shootings somewhat differently, the results are similar in finding that fatalities and injuries are larger in mass shootings in which large capacity magazines are involved. A 2019 academic article published in the *American Journal of Public Health* by Klarevas, Conner and Hemenway found that “[a]ttacks involving LCMs resulted in a 62% higher mean average death toll.”³⁰

³⁰ Louis Klarevas PhD, Andrew Conner BS, and David Hemenway PhD, “The Effect of Large-Capacity Magazine Bans on High-Fatality Mass Shootings, 1990–2017,” *American Journal of Public Health* (2019).

1 This study found an average number of fatalities of 11.8 per mass shooting with
2 a large-capacity magazine versus 7.3 for those without. The results in this study
3 were based on 69 mass shootings between 1990 and 2017.³¹ An analysis of the
4 mass shootings detailed in a 2016 article by Gary Kleck yielded similar results
5 (21 average fatalities or injuries in mass shootings involving large-capacity
6 magazines versus 8 for those without).³² The Kleck study covered 88 mass
7 shooting incidents between 1994 and 2013.³³ In a 2018 study, Koper et al. found
8 that mass shootings involving assault weapons and large-capacity magazines
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15 ³¹ The Klarevas, Conner and Hemenway study defines mass shootings as
16 “intentional crimes of gun violence with 6 or more victims shot to death, not
17 including the perpetrators.”

18 ³² Kleck, Gary, “Large-Capacity Magazines and the Casualty Counts in
19 Mass Shootings: The Plausibility of Linkages,” 17 *Justice Research and Policy*
20 28 (2016).

21 ³³ The Kleck study defines a mass shooting as “one in which more than six
22 people were shot, either fatally or nonfatally, in a single incident.”

1 resulted in an average of 13.7 victims versus 5.2 for other cases.³⁴ The Koper et
2 al. study covered 145 mass shootings between 2009 and 2015.³⁵

3 **2. Number of rounds fired in public mass shootings with**
4 **large-capacity magazines**

5 27. In addition, the data indicates that it is common for offenders to
6 fire more than ten rounds when using a gun with a large-capacity magazine in
7 mass shootings. Of the 63 mass shootings we analyzed that are known to have
8 involved a large-capacity magazine, there are 43 in which the number of shots
9 fired is known. Shooters fired more than ten rounds in 40 of the 43 incidents,
10 and the average number of shots fired was 103.

11 **3. Percent of mass shooters' guns legally obtained**

12 28. The data on public mass shootings indicates that the majority of
13 guns used in these mass shootings were obtained legally.³⁶ Of the 161 mass

14 ³⁴ Koper et al., "Criminal Use of Assault Weapons and High-Capacity
15 Semiautomatic Firearms: an Updated Examination of Local and National
16 Sources," *Journal of Urban Health* (2018)

17 ³⁵ The Koper et al. study defined mass shooting as "incidents in which four
18 or more people were murdered with a firearm, not including the death of the
19 shooter if applicable and irrespective of the number of additional victims shot but
20 not killed."

21 ³⁶ The determination of whether guns were obtained legally is based on
22 Mother Jones and Washington Post reporting.

1 shootings we analyzed, there are 100 where it can be determined whether the gun
2 was obtained legally. According to the data, shooters in 77% of mass shootings
3 obtained their guns legally (77 of the 100 mass shootings) and 79% of the guns
4 used in these 100 mass shootings were obtained legally (184 of the 234 guns).
5 (Note that even if one assumes that *all* of the mass shootings where it is not
6 known were assumed to be illegally obtained, then one would find 48% of the
7 mass shootings and 61% of the guns were obtained legally.)

8 I declare under penalty of perjury under the laws of the State of Washington
9 and the United States that the foregoing is true and correct.

10 DATED this 24th day of October 2022 at New York, New York.

11
12
13 
Lucy P. Allen

PROOF OF SERVICE

I hereby certify that I electronically filed the foregoing with the Clerk of the Court using the CM/ECF System, which in turn automatically generated a Notice of Electronic Filing (NEF) to all parties in the case who are registered users of the CM/ECF system.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

DATED this 24th day of October 2022 at Seattle, Washington.

s/ Andrew Hughes

ANDREW HUGHES, WSBA #49515
Assistant Attorney General